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Co-Chair: Luca Perregrini, University of Pavia

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¹XLIM, France; ²I3D Concept, France; ³Plateforme Technologique RAMSEIS, France

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¹Technische Universität München, Germany; ²University of Nottingham, UK; ³NXP Semiconductors, France; ⁴ISAE, France; ⁵Moscow Aviation Institute, Russia

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- N/A **Pattern Reconfigurable Antenna at 2.45GHz for WSN and WBAN Applications**
Anupam R. Chandran, Nick Timmons, Jim Morrison, LYIT, Ireland
- 739 **24GHz Dielectric Filled Waveguide Fed Horn Antenna Using 3D-LDS MID Technology**
Aline Friedrich¹, Bernd Geck¹, Malte Fengler², Andreas Fischer²
¹Leibniz Universität Hannover, Germany; ²LPKF Laser & Electronics, Germany

EuMC39: Wireless Power Transfer

Chair: Kamran Ghorbani, RMIT University

Co-Chair: Alessandra Costanzo, University of Bologna

Room 11, Time 11:20–13:00, Thursday 6th October 2016

- 743 **A Novel Hybrid 4-D Array Architecture for Intentional Wireless Power Transmission**
Diego Masotti, Alessandra Costanzo, Università di Bologna, Italy
- 747 **Circuit Model for Resonant Cavity Mode Enabled Wireless Power Transfer**
Mohsen Shahmohammadi, Matthew J. Chabalko, Alanson P. Sample, Disney Research, USA
- 751 **A Resonance Frequency Tracker and Source Frequency Tuner for Inductively Coupled Wireless Power Transfer Systems**
Seyit Ahmet Sis, Sabri Bicakci, Balikesir University, Turkey
- 755 **Experimental Investigation of Wireless Power Transfer Systems Based on Dielectric Resonators**
Polina Kapitanova, Mingzhao Song, Pavel Belov, ITMO University, Russia
- 759 **Design of Free-Positioning Wireless Power Charging System for AAA Rechargeable Battery**
Tae-Dong Yeo¹, Dae-Hyun Kim², Soo-Chang Chae¹, Seung-Tae Khang¹, Jong-Won Yu¹
¹KAIST, Korea; ²Seoul National University, Korea

EuMC40: Compact Implementation of Filters and Diplexers

Chair: Vicente Boria, Universidad Politécnica de Valencia

Co-Chair: Roberto Gomez, Universidad de Alcalá

Room 12, Time 11:20–13:00, Thursday 6th October 2016

- 763 **A Novel Dielectric-Loaded Dual-Mode Cavity for Cellular Base Station Applications**
Mustafa S. Bakr, Saad W.O. Luhaib, Ian C. Hunter, University of Leeds, UK
- 767 **Transmission Zero Realization in E-Plane Filters by Means of I/O Resonator Tapping**
Efstratios Doumanis¹, George Goussetis², J. Huurinainen²
¹Nokia, Ireland; ²Heriot-Watt University, UK
- 771 **Substrate-Integrated-Waveguide Signal-Interference Bandpass Filters**
Dimitra Psychogiou¹, Roberto Gómez-García², José-María Muñoz-Ferreras², Dimitrios Peroulis¹
¹Purdue University, USA; ²Universidad de Alcalá, Spain
- 775 **A New Class of SIW Filters Based on Periodically Perforated Dielectric Substrate**
Lorenzo Silvestri¹, Enrico Massoni¹, Maurizio Bozzi¹, Luca Perregrini¹, Cristiano Tomassoni², Angela Coves³
¹Università di Pavia, Italy; ²Università di Perugia, Italy; ³Universidad Miguel Hernández de Elche, Spain
- 779 **A Ka-Band Substrate-Integrated Waveguide Diplexer with Wide Frequency Spread**
Thomas Jaschke, Benjamin Rohrdantz, Jan-Philip Mohncke, Arne F. Jacob, Technische Universität Hamburg-Harburg, Germany

EuMC41 : Techniques and Microwave Devices for Controlling Surface Waves

Chair: Symon Podilchak, Heriot Watt University

Co-Chair: George Goussetis, Heriot Watt University

Room 1, Time 11:20-13:00, Thursday 6th October 2016

- 783 **The Role of Surface Waves in Design of Planar Leaky Wave Antennas**
Samir F. Mahmoud¹, Symon K. Podilchak², Alois P. Freundorfer³, Yahia M.M. Antar³
¹Cairo University, Egypt; ²Heriot-Watt University, UK; ³RMCC, Canada
- 787 **Controlling Surface Waves with Metasurfaces: From Planar Propagation to Conformal Cloaking**
Ladislau Matekovits, Giuseppe Labate, Politecnico di Torino, Italy
- 791 **Surface Wave Engineering for Beam Control in Planar Millimetre-Wave Antennas**
Timothy D. Drysdale¹, Clement J. Vourch²
¹Open University, UK; ²University of Glasgow, UK
- 795 **Electronically-Reconfigurable Parallel-Plate Wave Launchers Based on Corrugated Substrate Integrated Leaky Waveguides with Tunable Components**
José Luis Gómez-Tornero¹, Raúl Guzmán-Quirós¹, George Goussetis², Symon K. Podilchak²
¹Universidad Politécnica de Cartagena, Spain; ²Heriot-Watt University, UK
- 799 **Advances in Nonlinear, Active, and Anisotropic Artificial Impedance Surfaces**
Daniel Sievenpiper, Sanghoon Kim, Jiang Long, Jiyeon Lee, University of California at San Diego, USA

EuMC42 : Sensing and Applications

Chair: William J. Otter, Imperial College London

Co-Chair: Matthias Rudolph, Brandenburg University of Technology

Room 13, Time 11:20-13:00, Thursday 6th October 2016

- 803 **Material Characterization Using a Compact W-Band Ellipsometer**
Mathias Klenner, Christian Zech, Axel Hülsmann, Jutta Kühn, Michael Schlechtweg, Oliver Ambacher, Fraunhofer IAF, Germany
- 807 **Collision Frequency Determination of Low-Pressure Plasmas Based on RF-Reflectometry**
Christian Schulz, Ilona Rolfes, Moritz Oberberg, Peter Awakowicz, Ruhr-Universität Bochum, Germany
- 811 **A Novel Microwave Frequency Sweep Interferometer for ECR Plasma Electron Density Measurements**
Giuseppe Torrisi¹, Ornella Leonardi¹, Gino Sorbello¹, David Mascali¹, Giuseppe Castro¹, Luigi Celona¹, Rosalba Miracoli², Santo Gammino¹
¹INFN-LNS, Italy; ²Consorcio ESS-Bilbao, Spain
- 815 **Non-Destructive Testing for Black Heart Cavities in Potatoes with Microwave Radiation**
Imran Mohamed¹, Richard Dudley¹, Andrew Gregory¹, Ralf Mouthaan¹, Zhengrong Tian¹, Paul Andrews², Andrew Mellonie³
¹NPL, UK; ²MMG Citrus, UK; ³Marks and Spencer, UK
- 819 **Design of Experiment for the Characterization of a 160GHz Radar MMIC**
Martin Hitzler¹, Sebastian Bader¹, Stefan Saulig¹, Linus Boehm¹, Winfried Mayer², Christian Waldschmidt¹
¹Universität Ulm, Germany; ²Endress+Hauser, Germany

EuMC43 : Power Amplifier Systems

Chair: Rüdiger Quay, Fraunhofer IAF

Co-Chair: Andreas Wentzel, FBH

Room 14, Time 11:20–13:00, Thursday 6th October 2016

- 823 **An 60W Average Power Wideband Amplifier with Envelope Tracking for DVB-T Applications**
Daniel Maassen¹, Lothar Schenk², Martin Muessener², Peter Muehlbacher², Uwe Dalisda², Georg Boeck¹
¹Technische Universität Berlin, Germany; ²Rohde & Schwarz, Germany
- 827 **Discrete Gate Bias Modulation of a Class-G Modulated RF Power Amplifier**
Nikolai Wolff, Wolfgang Heinrich, Olof Bengtsson, FBH, Germany
- 831 **Generalised Digital Predistortion of RF Power Amplifiers with Low-Rate Feedback Signal**
Ziming Wang, Sarah Adel Ibrahim, Han Su, Ronan Farrell, Maynooth University, Ireland
- 835 **Development of a Highly Linear Ka-Band Power Amplifier Using Second Harmonic Injection Linearization**
Duy P. Nguyen, Thuy Nguyen, Anh-Vu Pham, University of California at Davis, USA
- 839 **A New Modulator for Digital RF Power Amplifiers Utilizing a Wave-Table Approach**
Florian Hühn, Andreas Wentzel, Wolfgang Heinrich, FBH, Germany

EuMC44 : Microwaves in the Americas

Chair: Roberto Murphy, INAOE, Mexico

Co-Chair: Jose Ernesto Rayas-Sanchez, The Jesuit University of Guadalajara

Room 16, Time 11:20–13:00, Thursday 6th October 2016

- 843 **An Overview of RF and Microwave Engineering Research Collaboration Between Latin America and the Rest of the World**
Roberto S. Murphy, Reydezel Torres-Torres, INAOE, Mexico
- 847 **Non-Linear Modeling for Low and High Power Microwave Transistors**
Guillermo Rafael-Valdivia¹, Zhiguo Su²
¹Universidad La Salle, Peru; ²Alcatel Lucent Shanghai Bell, China
- 851 **A Wideband Output Matching Network for Doherty Power Amplifier Applications**
Jorge Julián Moreno, Edison Ferney Angarita, UPTC, Colombia
- 854 **A Novel Configurable FPGA Architecture for Hardware Implementation of Multilayer Feedforward Neural Networks Suitable for Digital Pre-Distortion Technique**
J. Renteria-Cedano¹, C. Pérez-Wences¹, L.M. Aguilar-Lobo¹, J.R. Loo-Yau¹, S. Ortega-Cisneros¹, P. Moreno¹, J.A. Reynoso-Hernández²
¹CINVESTAV-IPN, Mexico; ²CICESE, Mexico
- 858 **Multilayer Integration and Packaging on Substrate Integrated Waveguide for Next Generation Wireless Applications**
Tarek Djerafi, Ke Wu, École Polytechnique de Montréal, Canada

EuMC45: Directive and Satellite Antennas

Chair: Peter Gardner, University of Birmingham

Co-Chair: Ioan Lager, Delft University of Technology

Room 17, Time 11:20–13:00, Thursday 6th October 2016

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| N/A | Design of Multimode Monopulse Tracking Feed for Satellite Communication
<i>Wentao Zhang¹, Qiang Wang¹, Chuanfei She¹, Yingyi He¹, Kui Zhuang¹, Ying Zhan²</i>
¹ China Academy of Engineering Physics, China; ² CETC 54, China |
| 866 | A Digital Beam-Forming Multiple-Beam Reflector Antenna Subsystem for GEO Communication Satellites
<i>Qinghua Lai¹, Chu Gao¹, Tianjie Peng¹, Zhenhua Liu¹, Xiaotao Wang¹, Handong Wu², Junmei Ma²</i>
¹ ECRIEE, China; ² HengDa Microwave, China |
| 870 | A K/Ka Band Radiating Element for Tx/Rx Phased Array
<i>A.I. Sandhu¹, E. Arnieri², G. Amendola², L. Boccia², E. Meniconi³, Volker Ziegler⁴</i>
¹ KAUST, Saudi Arabia; ² Università della Calabria, Italy; ³ Qorvo, Germany; ⁴ Airbus Group Innovations, Germany |
| 874 | New Agile EBG Matrix Antenna for Space Applications
<i>Ali Siblini¹, Hussein Abou Taam², Bernard Jecko¹, Mohamed Rammal², Anthony Bellion³</i>
¹ XLIM, France; ² Lebanese University, Lebanon; ³ CNES, France |
| 878 | Synthesis of a 2D Reconfigurable Parasitic Element Antenna
<i>C. Menudier¹, M. Thevenot¹, E. Arnaud¹, A. Oueslati¹, F. Fezai¹, T. Monediere¹, N. Chevalier², S. Reynaud²</i>
¹ XLIM, France; ² CISTEME, France |

EuMC46: New Technologies for Filter Realization

Chair: Richard Snyder, RS Microwave

Co-Chair: Vicente Boria, Universidad Politécnica de Valencia

Room 12, Time 14:20–16:00, Thursday 6th October 2016

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| 882 | Low-Loss Self-Switching Bandstop Filter
<i>Sanghoon Shin, Andrew C. Guyette, Eric J. Naglich, NRL, USA</i> |
| 886 | A Low-Loss Compact Stripline Low-Pass Filter for Millimeter-Wave Applications
<i>A. Gomez-Torrent¹, I. Arregui¹, J.D. Martinez², F. Teberio¹, J.V.M. Sanchez de Rojas², Vicente E. Boria², M.A.G. Laso¹</i>
¹ Universidad Pública de Navarra, Spain; ² Universidad Politécnica de Valencia, Spain |
| 890 | Novel Miniature Slow-Wave Resonator Filter Using Multilayer LCP Circuit Technology
<i>Zhou Zhou¹, Jiasheng Hong¹, Petronilo Martin Iglesias²</i>
¹ Heriot-Watt University, UK; ² ESA, The Netherlands |
| 894 | Continuously-Tunable-Bandwidth Acoustic-Wave Resonator-Based Bandstop Filters and their Multi-Mode Modeling
<i>Dimitra Psychogiou¹, Roberto Gómez-García², Dimitrios Peroulis¹</i>
¹ Purdue University, USA; ² Universidad de Alcalá, Spain |
| 898 | Synthesis and Design of Suspended Substrate Stripline Filters for Digital Microwave Power Amplifiers
<i>Monica Martinez Mendoza¹, Andreas Wentzel¹, Muhammad Sandhu², Alejandro Alvarez-Melcon³, Wolfgang Heinrich¹, Ian C. Hunter²</i>
¹ FBH, Germany; ² University of Leeds, UK; ³ Universidad Politécnica de Cartagena, Spain |

EuMC47: Applicators and Sensors for Medical Applications

Chair: Bart Nauwelaers, KU Leuven

Co-Chair: Nutapong Somjit, University of Leeds

Room 13, Time 14:20–16:00, Thursday 6th October 2016

- 902 **Cutting Human Tissue with Novel Atmospheric-Pressure Microwave Plasma Jet**
Achim Stephan¹, Holger Heuermann¹, Michael Prantner²
¹FH Aachen, Germany; ²BOWA-electronic, Germany
- 906 **Development of a 70MHz Unit for Hyperthermia Treatment of Deep Seated Breast Tumors**
J. Crezee, G. van Tienhoven, M.W. Kolff, J. Sijbrands, G. van Stam, S. Oldenburg, E.D. Geijssen, M.C.C.M. Hulshof, H.P. Kok, Academic Medical Center, The Netherlands
- 910 **A New Haemostatic Device Utilising a Novel Transmission Structure for Delivery of Adrenaline and Microwave Energy at 5.8GHz**
Shaun Preston¹, Malcolm White², Brian Saunders³, Zacharias Tsiamoulos³, Christopher P. Hancock¹
¹Bangor University, UK; ²Creo Medical, UK; ³St. Marks Hospital, UK
- 914 **Manufacturing Technologies for UHF RFID Epidermal Antennas**
S. Amendola¹, A. Palombi¹, L. Rousseau², G. Lissorgues², G. Marrocco¹
¹Università di Roma "Tor Vergata", Italy; ²ESYCOM, France
- 918 **A Feasibility Study on Human Gait Monitoring Using a Wearable K-Band Radar**
Yao Tang¹, Lixin Ran², Changzhi Li¹
¹Texas Tech University, USA; ²Zhejiang University, China

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EuMC48: Energy Harvesting and Wireless Power Transfer

Chair: Alexandru Takacs, LAAS-CNRS

Co-Chair: Shigeo Kawasaki, JAXA

Room 14, Time 14:20–16:00, Thursday 6th October 2016

- 922 **Design of a Wide Dynamic Range Rectifier Array with an Adaptive Power Distribution Technique**
Xiaoyu Wang, Omar Abdelatty, Amir Mortazawi, University of Michigan, USA
- 926 **A Compact Size and High Efficiency CMOS-IPD Rectenna Using 2.5D Wafer-Level Packing for a Wireless Power Harvesting System**
Kuei-Cheng Lin¹, Po-Chang Wu¹, Hann-Huei Tsai¹, Ying-Zong Juang¹, Chao-Shun Yang², Guo-Wei Huang²
¹NARLabs, Taiwan; ²NDL, Taiwan
- 930 **Cross Dipoles Rectenna for Microwave Applications**
A. Okba, S. Charlot, P-F Calmon, A. Takacs, H. Aubert, LAAS, France
- 934 **Impact of Symbol Rate and Roll-Off Factor on Rectifier RF-DC Conversion Efficiency for WiCoPT System**
Hitoshi Shimamura¹, Ryuya Tanaka¹, Hiroto Sakaki², Satoshi Yoshida¹, Kenjiro Nishikawa¹, Shigeo Kawasaki³
¹Kagoshima University, Japan; ²Mitsubishi Electric, Japan; ³JAXA, Japan
- 938 **A CMOS Full-Wave Rectifier with Threshold Compensation Based on Inherent Body-Voltage Control**
Leandro Grasso¹, Giuseppe Palmisano¹, Ranieri Guerra²
¹Università di Catania, Italy; ²STMicroelectronics, Italy

EuMC49: Photonic Technologies for Terahertz Systems Engineering

Chair: John Cunningham, University of Leeds

Co-Chair: William J. Otter, Imperial College London

Room 15, Time 14:20–16:00, Thursday 6th October 2016

- 942 **Towards Optical Fiber Synthesis of Millimeter and Submillimeter Waves**
Ayman Hallal, Steve Bouhier, Simon Le Méhauté, François Bondu, IPR (UMR 6251), France
- 945 **Multi-Layered Stacked Patch-Antennas on Electro-Optic Material for Optical Modulation**
Y.N. Wijayanto¹, A. Kanno¹, T. Kawanishi¹, H. Murata², T. Umezawa¹, N. Yamamoto¹, Y. Okamura²
¹NICT, Japan; ²Osaka University, Japan
- 949 **Improvements on Broadband Signals in Radio Over Fiber Systems by Mode Filtering**
Tamás Cseh¹, Gábor Fekete¹, Tibor Berceli¹, Eszter Udvary¹, Ali Kabalan², Wosen Kassa², Carlos Viana², Anne-Laure Billabert², Salim Faci², Jean-Luc Polleux², Catherine Algani²
¹BME, Hungary; ²ESYCOM, France
- 953 **Delay-Line Optoelectronic Oscillator with All-Optical Gain**
K. Mikitchuk, A. Chizh, S. Malyshev, NASB, Belarus
- 957 **Quantum Mechanical Analysis of a THz Graphene Travelling Wave Amplifier**
Naimeh Ghafarian, Amir Hamed Majedi, Safieddin Safavi-Naeini, University of Waterloo, Canada

EuMC50: APMC Selected Papers

Chair: Stepan Lucyszyn, Imperial College London

Co-Chair: Roberto Sorrentino, University of Perugia

Room 16, Time 14:20–16:00, Thursday 6th October 2016

- 961 **Broadband Doherty Power Amplifier and Linearization**
Wenhua Chen, Xiaofan Chen, Zonghao Wang, Tsinghua University, China
- 965 **Frequency Reconfigurable Antenna for Future Wireless Communication System**
M.K.A. Rahim¹, M.R. Hamid¹, N.A. Samsuri¹, N.A. Murad¹, M.F.M. Yusoff¹, H.A. Majid²
¹Universiti Teknologi Malaysia, Malaysia; ²Universiti Tun Hussein Onn Malaysia, Malaysia
- 971 **Micromachined Switches and Phase Shifters for Transmit/Receive Module Applications**
Shiban K. Koul¹, Sukomal Dey¹, Ajay K. Poddar², Ulrich L. Rohde²
¹IIT Delhi, India; ²Synergy Microwave, USA

EuMCPPoster01 : EuMC Poster Session 1

Chair: Rob Sloan, University of Manchester

Exhibition Hall, Time 13:00-14:20, Tuesday 4th October 2016

- 975 **Compact Single-Band Planar Crossover Based on Coupled Lines**
Wenjie Feng, Tianyu Zhang, Wenquan Che, NUST, China
- 979 **90° Broadband Asymmetrical Open-Short-Stub Phase Shifter with Inductance Compensation**
Muh-Dey Wei, Peco Gjurovski, Renato Negra, RWTH Aachen University, Germany
- 983 **Resonant Properties of Mismatched Ring Circuits**
Sebastian Raabe, Carsten Monka, Sebastian Franke, Reinhard Caspary, Joerg Schoebel, Technische Universität Braunschweig, Germany
- 987 **Ultra Broadband Planar Transmission Line Transformers with Ferrite Based Bandwidth Extension**
Zihui Zhang, Georg Boeck, Technische Universität Berlin, Germany
- 991 **Real-Valued Discrete-Time Impulse Response Representation of Bandpass S-Parameters**
Yudie Wang, Anding Zhu, Thomas J. Brazil, University College Dublin, Ireland
- 995 **Compact Low Phase-Noise MEMS-Based RF Oscillator on a Dedicated Silicon-Ceramic Composite Substrate**
J. Stegner, M. Fischer, S. Gropp, D. Podoskin, U. Stehr, Jens Müller, M. Hoffmann, Matthias A. Hein, Technische Universität Ilmenau, Germany
- N/A **Ferroelectric Varactor on Diamond Substrate for High Power Microwave Applications**
A. Tumarkin, A. Altyinnikov, A. Mikhailov, R. Platonov, Andrey Kozyrev, S. Razumov, A. Gagarin, I. Kotelnikov, St. Petersburg Electrotechnical University, Russia

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- 1003 **Design of BST-on-Si Composite FBARs for Switchable BAW Filter Application**
Milad Zolfaghharloo Koohi, Seungku Lee, Amir Mortazawi, University of Michigan, USA
- 1007 **Gain Improved Stacked Antenna Tuned Using Ferromagnetic Nanoparticles and Ferroelectrics Films**
Y. Malallah¹, K. Alhassoon¹, D. Venkatesh¹, A.S. Daryoush¹, C. Chinnasamy², M. Marinescu², H. Gundel³
¹Drexel University, USA; ²Electron Energy, USA; ³IETR, France
- 1011 **RF Solderless Vertical Interconnection for 3D Module Integration**
Andrea Bentini, Giovanni De Santis, Marco Bartocci, Elettronica, Italy
- 1015 **L-Band SiGe HBT Active Differential Equalizers with Variable Inclination and Position of the Positive or Negative Gain Slopes**
Yasushi Itoh, Hiroaki Takagi, Shonan Institute of Technology, Japan
- 1019 **Broadband High Linearity IQ Modulator for Direct Conversion Transmitters**
Nir Yahav, Avner Efendowicz, Broadcom, Israel
- 1023 **A Broadband Frequency Ramp Generator for Very Fast Network Analysis Based on a Fractional-N Phase Locked Loop**
Malte Mallach¹, David-Benjamin Gryś¹, Thomas Musch¹, Robert Storch²
¹Ruhr-Universität Bochum, Germany; ²KROHNE Innovation, Germany
- 1027 **Inductorless Wideband LNA with Improved Input Matching Using Feedforward Technique**
Pierre Bousseaud, Muhammad Abdullah Khan, Renato Negra, RWTH Aachen University, Germany

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- 1031 **Front-End MMICs for Broadband High Throughput Satellite Systems Utilizing V and Q-Band**
David Neilson, Norman Chiang, Ronald Remba, James J. Sowers, SSL, USA
- 1035 **Millimeter Wave Six-Port QPSK Modulators for High Data-Rate Wireless Communications**
B. Zouggar, C. Hannachi, E. Moldovan, S.O. Tatu, INRS-EMT, Canada
- 1039 **Graphical Approach to Analysis and Design of Gain-Boosted Near- $f_{\max}$ Feedback Amplifiers**
Shuhei Amakawa, Yuji Ito, Hiroshima University, Japan
- 1043 **Microwave Active Ring Resonator Based on Spin-Wave Delay Line**
M.I. Martynov, A.A. Nikitin, A.B. Ustinov, B.A. Kalinikos, St. Petersburg Electrotechnical University, Russia
- 1047 **Design of Liquid Crystal Based Coplanar Waveguide Tunable Phase Shifter with No Floating Electrodes for 60–90GHz Applications**
J.F. Li, H. Xu, D.P. Chu, University of Cambridge, UK
- 1051 **Impedance Tuner Using BST Varactors in Alumina-Based IPD Technology**
Ka Wai Wong, Raafat R. Mansour, University of Waterloo, Canada
- 1055 **Experimental Proof-of-Principle of a Passive, Nearly Reciprocal, Transistor-Based Tuneable RF Inductance**
S. Loracher, K. Blau, U. Stehr, Ralf Stephan, Matthias A. Hein, Technische Universität Ilmenau, Germany
- 1059 **Tunable and Switchable Dual-Band BPF with Reconfigurable Selectivity and Bandwidth Control**
Nagendra Kumar, Yatendra Kumar Singh, IIT Patna, India

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- 1063 **Compact Harmonic Tuning Circuits for Class-F Amplifiers Using Negative Order Resonance Modes of CRLH Stub Lines**
Shinichi Tanaka, Souta Koizumi, Kengo Saito, Shibaura Institute of Technology, Japan
- 1067 **Joint Compensation of Modulator and Power Amplifier Nonlinearities Based on a Complex-Valued Volterra Model**
C. Crespo-Cadenas, M.J. Madero-Ayora, J. Reina-Tosina, J.A. Becerra-González, Universidad de Sevilla, Spain
- 1071 **Output Harmonic Optimisation of Dynamically Load Modulated Power Amplifiers**
Konstantinos Mimis¹, Gavin T. Watkins¹, Atsushi Yamaoka², Keiichi Yamaguchi²
¹Toshiba Research Europe, UK; ²Toshiba, Japan
- 1075 **Parallel Combination of High-Efficiency Amplifiers with Spurious Rejection for Concurrent Multiband Operation**
Jun Enomoto, Haruka Nishizawa, Ryo Ishikawa, Yoichiro Takayama, Kazuhiko Honjo, University of Electro-Communications, Japan
- 1079 **A Hybrid 50-W GaN-HEMT Ku-Band Power Amplifier**
Felix Rautschke¹, Daniel Maassen¹, Florian Ohnimus², Lothar Schenk², Uwe Dalisda², Georg Boeck¹
¹Technische Universität Berlin, Germany; ²Rohde & Schwarz, Germany
- 1083 **Comparison of Filter Bank Multi-Carrier and Orthogonal Frequency-Division Multiplexing RPA Linearisation Requirement**
Kibrom N. Gebremicael¹, Kevin Morris¹, Souheil Bensmida¹, Mark Beach¹, Stephen Wales², Michalis Kyriacou³
¹University of Bristol, UK; ²Roke Manor Research, UK; ³University of York, UK

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- 1087 **The Two-Tone Model for Power Amplifier Modeling**
Telmo R. Cunha, Filipe M. Barradas, José C. Pedro, Universidade de Aveiro, Portugal
- 1091 **160W Peak Highly Linear Multilevel Outphasing Transmitter**
Chi Thanh Nghe¹, Daniel Maassen¹, Georg Boeck¹, J. Guan², A. Aref², Renato Negra²
¹Technische Universität Berlin, Germany; ²RWTH Aachen University, Germany
- 1095 **Phase Control in Photonically Steered Phased Array Transmitters by Optical Homodyne Detection**
Kevin Kolpatzeck, Lars Häring, Andreas Czyllwik, Universität Duisburg-Essen, Germany
- 1099 **Experimental Test of a W-Band Gyro-TWA for Cloud Radar Applications**
W. He, C.R. Donaldson, L. Zhang, P. McElhinney, H. Yin, J.R. Garner, K. Ronald, A.W. Cross, A.D.R. Phelps, University of Strathclyde, UK
- 1103 **Novel Microwave Diode for Millimeter Waves on the Base of Asymmetrically Doped Semiconductor Structure**
Algirdas Sužiedėlis, Steponas Ašmontas, Jonas Gradauskas, Viktoras Gružinskis, Andžej Lučun, Aurimas Čerškus, CPST, Lithuania
- 1107 **Frequency Sensitive Effect of Rectifying FET Terahertz Detectors**
A. Golenkov, F. Sizov, I. Lysiuk, NASU, Ukraine
- 1111 **Waveguide Modal Approximation Method for Plane Wave Incidence to Aperture Using Mode-Matching Method**
Jihyeon Jang¹, Changyul Cheon¹, Young-seek Chung²
¹University of Seoul, Korea; ²Kwangwoon University, Korea
- 1115 **Reduced-Complexity E-Band VNAs with Tethered Far-Reaching Reflectometers**
K.M. Noujeim, T. Roberts, Anritsu, USA

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- 1119 **A Multi-Tone Load Pull Measurement System for On-Wafer Characterization of Microwave Power Transistors**
Sylvain Laurent¹, Si Abed Karim Kahil², Raymond Quéré¹, Jacques Sombrin¹
¹XLIM, France; ²United Monolithic Semiconductors, France
- 1123 **120° Accesses CPW Transmission Lines for TRL Calibration Standards in a Band of 20–67GHz**
Arafat Ousman Bechir, Didier Vincent, Hubert Curien (UMR 5516), France
- 1127 **Robotic Flange System for Active Alignment of Microwave, Millimetre-Wave and Terahertz Waveguides**
Yasamin Alkhorshid¹, Ian D. Robertson²
¹Technische Universität Chemnitz, Germany; ²University of Leeds, UK
- 1131 **Agile and Compact Near-Field Analyses of Onboard Bluetooth Module by Live Electrooptic Imaging**
Masahiro Tsuchiya¹, Takahiro Shiozawa²
¹NICT, Japan; ²Kagawa College, Japan
- 1135 **Frequency Detection Method with Transversal Filters**
Ken'ichi Tajima, Morishige Hieda, Mitsubishi Electric, Japan
- 1139 **Permittivity Measurements and Associated Uncertainties up to 110GHz in Circular-Disk Resonator Method**
Yuto Kato, Masahiro Horibe, AIST, Japan
- 1143 **Power Maximization in a WPT Link Using Three Transmitters and a Single Receiver**
Giuseppina Monti¹, Alessandra Costanzo², Franco Mastri², Mauro Mongiardo³, Luciano Tarricone¹
¹Università del Salento, Italy; ²Università di Bologna, Italy; ³Università di Perugia, Italy

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- 1147 **Open-Loop Maximum Efficiency Tracking Wireless Power Transfer System for Biomedical Implants**
Seung-Tae Khang, Soo-Chang Chae, Tae-Dong Yeo, Jong-Won Yu, KAIST, Korea
- 1151 **Impact of Multisine Excitation Design on Rectifier Performance**
Mohammad Rajabi, Ning Pan, Sofie Pollin, Dominique Schreurs, Katholieke Universiteit Leuven, Belgium

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Chair: Rob Sloan, University of Manchester

Exhibition Hall, Time 13:00-14:20, Wednesday 5th October 2016

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Eugene A. Ogbodo, Yun Wu, Yi Wang, University of Greenwich, UK
- 1159 **Dual Band Filter with Quad-Mode Stripline Resonator**
Masaya Tamura, Kento Ichinose, Toyohashi University of Technology, Japan
- 1163 **Microstrip Wideband Diplexer with Narrow Guard Band Based on All-Resonator Structures**
Yun Wu, Yi Wang, Eugene A. Ogbodo, University of Greenwich, UK
- 1167 **Multi-Coupled Resonator Microwave Diplexer with High Isolation**
Augustine O. Nwajana, Kenneth S.K. Yeo, University of East London, UK
- 1171 **Balanced Bandpass Filter with Intrinsic Common Mode Suppression Using Slot Coupled Lines and Microstrip Loading Lines**
Yang-Chih Huang, Chin-Yi Lin, Tzong-Lin Wu, National Taiwan University, Taiwan
- 1175 **A Hybrid Model for Manifold Multiplexers Without Sleeves**
Xinshe Yin, Jun Yang, Shoujia Sun, CAST, China
- 1179 **New Rectangular Waveguide BPF Design Using Complementary Split Ring Resonator**
Werner Arriola, Carlos Arriola, Jong Wook Lee, Ihn Seok Kim, Kyung Hee University, Korea
- 1183 **Ultra Broadband Non-Planar DC-67-100GHz Contiguous Diplexer Implemented on Organic Liquid Crystal Polymer (LCP)**
Irfan Ashiq, A.P.S. Khanna, National Instruments, USA

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D.A. Usanov¹, A.V. Skripal¹, D.V. Ponomarev¹, V.P. Meshanov², N.F. Popova², M.K. Merdanov³
¹Saratov State University, Russia; ²Nika-Microwave, Russia; ³Electronic Engineering, Russia
- 1191 **Design of Near-Field Beam-Splitting Frequency Selective Surfaces for Fabry-Perot Cavity Antenna Systems**
Chanjoon Lee, Robert Sainati, Rhonda Franklin, University of Minnesota, USA
- 1195 **Electrically Tunable Thin-Film Magnonic Crystals Based on a Slot Transmission Line**
A.A. Nikitin¹, A.A. Nikitin¹, A.B. Ustinov¹, A.A. Semenov¹, E. Lähderanta²
¹St. Petersburg Electrotechnical University, Russia; ²Lappeenranta University of Technology, Finland
- 1199 **Nonreciprocal Frequency Mixing in the Nonlinear PT-Symmetric Hyperbolic Metamaterials**
O.V. Shramkova, G.P. Tsironis, University of Crete, Greece
- 1203 **An Optically Transparent Wideband High Impedance Surface**
Mahmoud M. Mostafa¹, Mohamed I. Ibrahim¹, Amr M.E. Safwat¹, Tamer M. Abulfadl²
¹Ain Shams University, Egypt; ²Cairo University, Egypt
- 1207 **Dual-Polarization Correlation Radiometry System for Microwave Imaging of Heat Sources of Biological Tissues**
Rae-Seoung Park, Byeongdeok Park, Byambaakhuu Batnairamdal, Changyul Cheon, University of Seoul, Korea

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Xin Jin¹, James C.M. Hwang¹, Marco Farina², Andrea Di Donato², Davide Mencarelli², Antonio Morini², Giuseppe Venanzoni², Francesca De Angelis², Francesco Piacenza³, Marco Malavolta³, Mauro Provinciali³
¹Lehigh University, USA; ²Università Politecnica delle Marche, Italy; ³INRCA, Italy
- 1215 **Improved Field Homogeneity for Multi-Channel Stepped Impedance Microstrip Transceiver Arrays and Travelling Wave for MRI at 7T**
Ibrahim A. Elabyad¹, T. Herrmann², C. Bruns², J. Bernarding², Daniel Erni³
¹Thebes Academy, Egypt; ²OvG Universität Magdeburg, Germany; ³Universität Duisburg-Essen, Germany
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- 1223 **Design of Conformal Wideband Antennas for Capsule Endoscopy Within a Body Tissue Environment**
Julia Faerber, Gerard Cummins, Marc P.Y. Desmulliez, Heriot-Watt University, UK
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Oleksandr Rybalko, Sean Bowen, Vitaliy Zhurbenko, Jan Henrik Ardenkjær-Larsen, Technical University of Denmark, Denmark
- 1231 **Dispersion Compensation Through Varying Temporal Windows for Time Reversal Methods**
Ammar M. Abduljabbar¹, Mehmet E. Yavuz², Fumie Costen¹, Ryutaro Himeno³, Hideo Yokota³
¹University of Manchester, UK; ²USA; ³RIKEN, Japan

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Maximilian Wölfel¹, Ulrich Bochtler¹, Thomas F. Eibert², Christoph Schmitt³
¹Hochschule Aschaffenburg, Germany; ²Technische Universität München, Germany; ³KaiTec, Germany
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¹Technicolor, France; ²CTP, France
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Clement J. Vourch¹, Timothy D. Drysdale²
¹University of Glasgow, UK; ²Open University, UK

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K. Krishnamoorthy¹, Basudev Majumder¹, J Mukherjee¹, K.P. Ray²
¹IIT Bombay, India; ²SAMEER, India
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Ta-Yeh Lin¹, Tsenchieh Chiu², Yin-Cheng Chang¹, ChaoPing Hsieh¹, Da-Chiang Chang¹
¹NARLabs, Taiwan; ²National Central University, Taiwan
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Samuel López Ruiz¹, Félix Tercero Martínez¹, José A. López-Fernández¹, Seog-Tae Han¹, Pablo-Luis López-Espí², Rocío Sánchez-Montero², Francisco J. Beltrán Martínez²
¹Instituto Geográfico Nacional, Spain; ²Universidad de Alcalá, Spain
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Liang Yang¹, Hao Wang¹, Xun Jiang¹, Yong Huang²
¹NUST, China; ²Suzhou Bohai Microsystem, China

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Yavuz Asci¹, Eren Curuk², Korkut Yegin¹, Caner Ozdemir²
¹Ege University, Turkey; ²Mersin University, Turkey
- 1287 **A Ka and Ku Band Feed Horn for Satellite Broadband and TV Integrated IP Solution**
Tao Huang, Global Invacom, UK
- 1291 **Antenna Array Control via Integrated Optically-Activated Organic Semiconductor for S-Band Applications**
Andre Sarker Andy, James William Ewart Kneller, Rostyslav Dubrovka, Theo Kreouzis, Robert Donnan, Queen Mary University of London, UK
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Peter Alizadeh, Clive Parini, Khalid Z. Rajab, Queen Mary University of London, UK
- 1299 **Characterization of a New Integrated Scan-Phase Antenna Diversity Circuit for Automotive Satellite Radio Reception**
S. Senega¹, J. Roeber², A. Nassar¹, Robert Weigel², C. Heuer³, Stefan Lindenmeier¹
¹Universität der Bundeswehr München, Germany; ²FAU Erlangen-Nürnberg, Germany; ³FUBA Automotive Electronics, Germany
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Lu Wang, Gang Wang, Qi Zhao, USTC, China
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Yudong He, Youjiang Liu, Niantong Du, Nan Xie, CAEP, China

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Michele D'Amico¹, Andrea Manzoni¹, Gian Leonardo Solazzi²
¹Politecnico di Milano, Italy; ²NGI, Italy
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- 1323 **Electromagnetic Characterization of Automotive Sunroofs for Car-to-X Applications**
Miguel Bueno Diez, Wilfrid Pascher, Stefan Lindenmeier, Universität der Bundeswehr München, Germany
- 1327 **Design and Analysis of a Novel Low Cost High Data Capacity Chipless RFID Tag on Plastic Substrate**
Shuvashis Dey, Nemai Chandra Karmakar, Monash University, Australia
- N/A **Radiofrequency Identification System for 2.4–2.483GHz Based on Passive Surface Acoustic Wave Tags with Anti-Collision Properties**
Sergey Yankin¹, Sergey Suchkov¹, Sergey Komkov¹, Aleksey Pilovets¹, Artem Litvinenko¹, Iuliia Shatrova¹, Dmitry Suchkov¹, Viktor Nikolaevtsev¹, Sergey Nikitov²
¹Saratov State University, Russia; ²Russian Academy of Sciences, Russia
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J. Fourmann¹, A. Coustou¹, H. Aubert¹, P. Pons¹, J. Luc², A. Lefrançois², M. Lavayssière², A. Osmont²
¹LAAS, France; ²CEA Gramat DAM, France
- 1343 **Undergraduate Teaching for Digital Signals on Transmission Lines**
R.J. Collier, University of Kent, UK

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Co-Chair: Steve Nightingale, Cobham Antenna Systems

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David Glynn, Tianhao He, Jeff Powell, Yingtao Tian, Xiaobang Shang, Michael J. Lancaster, University of Birmingham, UK
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Sema Dumanli, Toshiba Research Europe, UK
- 1353 **Broadband Push-Pull Power Amplifier Design at Microwave Frequencies**
R.M.H. Smith¹, S.C. Cripps²
¹Plextek RFI, UK; ²Cardiff University, UK
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Michael James Roberts, Slipstream Engineering Design, UK
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Olive Murphy¹, Mohammad Reza Bahmanyar², Christopher N. McLeod², Christofer Toumazou², Magdi Yacoub³
¹Analog Devices, Ireland; ²Imperial College London, UK; ³Harefield Hospital, UK

EuMIC/EuMC02 : RF MEMS Components and Packaging

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- 1369 **Advances in MEMS Switches for RF Test Applications**
Tamir Moran¹, Chris Keimel², Todd Miller³
¹National Instruments, USA; ²Menlo Microsystems, USA; ³GE Global Research, USA
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Eric Carty, Padraig Fitzgerald, Padraig McDaid, Bernard Stenson, Raymond Goggin, Analog Devices, Ireland
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Kevin Nadaud¹, Fabien Roubeau¹, Arnaud Pothier¹, Pierre Blondy¹, Lin-Yang Zhang², Romain Stefanini²
¹XLIM, France; ²AirMems, France
- 1381 **Thin Film Wafer Level Encapsulated RF-MEMS Switch for D-Band Applications**
S. Tolunay Wipf, A. Göritz, M. Wietstruck, C. Wipf, B. Tillack, Andreas Mai, Mehmet Kaynak, IHP, Germany

EuMIC/EuMC03: THz Photonics Electronic Components and Systems

Chair: Mohamed Elkhoully, Robert Bosch

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- 1385 **Photonic BiCMOS Technology — Enabler for Si-Based, Monolithically Integrated Transceivers Towards 400 Gbps**
Stefan Lischke, Dieter Knoll, Lars Zimmermann, Pedro Rito, Ahmet Cagri Ulusoy, Ahmet Awmy, Despoina Petousi, Iria Garcia Lopez, Christian Mai, Marcel Kroh, Bernd Heinemann, Holger Rücker, Rainer Barth, Jens Katzer, Markus Andreas Schubert, Mehmet Kaynak, Andreas Mai, IHP, Germany
- 1389 **GaN Laser Driver Switching 30A in the Sub-Nanosecond Range**
Armin Liero, Andreas Klehr, Thomas Hoffmann, Thomas Prziwarka, Wolfgang Heinrich, FBH, Germany
- 1393 **Electronic Stabilization Methods for a Single-Loop Opto-Electronic Oscillator**
Mehmet Alp Ilgaz, Luka Bogataj, Boštjan Batagelj, Matjaž Vidmar, University of Ljubljana, Slovenia
- 1397 **High-Conversion-Gain 100-GHz Photoreceiver Integrated with UTC-PD and PHEMT Amplifier for 92-GHz Carrier, 10.7-Gbps Photonic Wireless Communication**
T. Umezawa¹, K. Kashima², A. Kanno¹, P.T. Dat¹, K. Akahane¹, A. Matsumoto¹, N. Yamamoto¹, T. Kawanishi¹
¹NICT, Japan; ²Hitachi Kokusai Electric, Japan
- 1401 **Characterization of Sub-THz Detection Array in 0.18 μ m CMOS Technology**
Jixin Chen, Weitian Liu, Pinpin Yan, Chenwei Jia, Debing Hou, Chao Yu, Wei Hong, Southeast University, China

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Pablo García-Carrendo¹, Sonia García-Álvaro¹, José A. López-Pérez¹, María Patino-Esteban¹, José M. Serna¹, Beatriz Vaquero-Jiménez¹, José A. López-Fernández¹, Pablo-Luis López-Espí², Rocío Sánchez-Montero²
¹Instituto Geográfico Nacional, Spain; ²Universidad de Alcalá, Spain
- 1409 **Self-Biasing Effects Induced by RF Step-Stress in Ka-Band LNAs Based on InAlN/GaN HEMT Technology**
J.G. Tartarin¹, S.D. Nsele¹, S. Piotrowicz², S.L. Delage²
¹LAAS, France; ²III-V Lab, France
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Zyad Iskandar¹, Jose Lugo-Alvarez¹, Alfredo Bautista¹, Emmanuel Pistono¹, Florence Podevin¹, Vincent Puyal², Alexandre Siligaris², Philippe Ferrari¹
¹IMEP-LAHC, France; ²CEA-LETI, France
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Keiichi Motoi, Naoki Oshima, Masaki Kitsunezuka, Kazuaki Kunihiro, NEC, Japan
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Christian Schuster¹, Alex Wiens¹, Martin Schüßler¹, Christian Kohler², Joachim R. Binder², Rolf Jakoby¹
¹Technische Universität Darmstadt, Germany; ²KIT, Germany
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Chair: Peter Aaen, University of Surrey

Co-Chair: Olof Bengtsson, FBH

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Diane Bouw, Philippe Sin, Marc Camiade, Jean Pierre Viaud, United Monolithic Semiconductors, France

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Chair: Pierre Blondy, XLIM CNRS Universite de Limoges

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¹Fraunhofer IZM, Germany; ²Isola, Germany
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M.V. Pelegrini¹, J.M. Pinheiro¹, L.G. Gomes¹, G.P. Rehder¹, A.L.C. Serrano¹, Florence Podevin², Philippe Ferrari²
¹Universidade de São Paulo, Brazil; ²IMEP-LAHC, France
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¹Technische Hochschule Deggendorf, Germany; ²Rohde & Schwarz, Germany
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¹KIT, Germany; ²Silicon Radar, Germany
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¹Universität Ulm, Germany; ²Endress+Hauser, Germany
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¹FFI, Norway; ²University of Oslo, Norway
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¹Silicon R&D, Korea; ²Kwangwoon University, Korea; ³SeoulTech, Korea; ⁴LIGNEX1, Korea
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Stefan Trummer¹, Gerhard F. Hamberger², Uwe Siart², Thomas F. Eibert²
¹ASTYX Communication & Sensors, Germany; ²Technische Universität München, Germany

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¹China Academy of Space Technology, China; ²Beijing Institute of Technology, China
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M. Rösch¹, Axel Tessmann¹, Arnulf Leuther¹, M. Kuri¹, S. Wagner¹, Oliver Ambacher¹, Heiko Gulan²
¹Fraunhofer IAF, Germany; ²KIT, Germany
- 1521 **A DC Offset-Free Ultra-Wideband Direct Conversion Receiver Based on Photonics**
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¹CNIT, Italy; ²Elettronica, Italy
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¹Hitachi, Japan; ²Hitachi Automotive Systems, Japan
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Budhaditya Pyne¹, Prilando Akbar², Hirobumi Saito¹, Miao Zhang³, Jiro Hirokawa³, Makoto Ando³
¹University of Tokyo, Japan; ²JAXA, Japan; ³Tokyo Institute of Technology, Japan

EuRAD/EuMC04 : Millimetre-Wave and THz Radar Applications

Chair: Martin Vossiek, FAU

Co-Chair: Volker Ziegler, Airbus

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¹Jet Propulsion Laboratory, USA; ²Technische Universiteit Delft, The Netherlands
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D.A. Robertson¹, D.G. Macfarlane¹, T. Bryllert²
¹University of St Andrews, UK; ²Wasa Millimetre Wave, Sweden
- 1549 **Focused Imaging by Geometric Optics for Real-Time Passenger Screening at Sub-Millimeter Wave Frequencies**
R. Herschel, G. Brieze, S.A. Lang, Nils Pohl, Fraunhofer FHR, Germany
- 1553 **Detection and Tracking of Micro Aerial Vehicles with Millimeter Wave Radar**
Michael Caris, Stephan Stanko, Winfried Johannes, Stefan Sieger, Nils Pohl, Fraunhofer FHR, Germany

EuRAD/EuMC05 : Millimetre-Wave Antenna Arrays

Chair: Werner Wiesbeck, Karlsruhe Institute of Technology

Co-Chair: Parbhu Patel, HMGCC

Room 17, Time 14:20-16:00, Thursday 6th October 2016

- 1556 **Double Circularly Polarized On-Chip Antenna for a 120-130GHz Amplitude Monopulse Radar**
Benjamin Goettel¹, Jochen Schaefer¹, Heiko Gulan¹, Wolfgang Winkler², Thomas Zwick¹
¹KIT, Germany; ²Silicon Radar, Germany
- 1560 **Lens Array Antenna for 71-76/81-86GHz Point-to-Point Applications**
Andrey Mozharovskiy, Alexey Artemenko, Oleg Soykin, Roman Maslennikov, Radio Gigabit, Russia
- 1564 **76-81GHz Fully Planar and Array Compatible LTCC Antenna Element for Automotive Radar Sensors**
Frank Sickinger, Ernst Weissbrodt, Valeo Schalter und Sensoren, Germany
- 1568 **The Development of a Wideband 'Rocket' Phased Array Feed**
Alex Dunning, Mark A. Bowen, Douglas B. Hayman, Jeganathan Kanapathippillai, Henry Kanoniuk, Robert D. Shaw, Sean Severs, CSIRO, Australia
- 1572 **Millimeter-Wave TX Phased Array with Phase Adjusting Function Between Transmitters for Hybrid Beamforming with Interleaved Subarrays**
Toshihiro Shimura, Takenori Ohshima, Hiroshi Ashida, Shohei Ishikawa, Shunsuke Fujio, Tatsushi Honda, Zhengyi Li, Kenichi Nishikawa, Chikara Kojima, Kazuyuki Ozaki, Masahiko Shimizu, Yoji Ohashi, Fujitsu Laboratories, Japan
- 1576 **800 Watts 3 Ways Doherty Power Amplifier Achieving 50% Efficiency Designed with Over Molded Package LDMOS Device**
L. Bollinger, H. Rosa, P. Gola